

Appl. No.: 10/602,185
Amdt. dated 02/23/2005
Reply to Office action of November 24, 2004

REMARKS/ARGUMENTS

Status of Claims

In the Office action, Claims 1-26 were noted as pending in the application and all Claims were rejected. In addition, Claims 1-13 were withdrawn following nonelection subsequent to a restriction requirement.

By the present Amendment, Claim 14 has been amended and new Claim 27 has been added to the subject application. Accordingly, Claims 1-27 are now pending in the application.

Affirmation of Election Following Restriction Requirement

On Page 3, Paragraph 4 of the Restriction Requirement section of the Office action, affirmation of the election of Claims 14-26 for continued prosecution in the subject application was requested. Applicant hereby affirms its election without traverse to prosecute Claims 14-26 in the subject application. Claims 1-13 are thus withdrawn as directed to a nonelected invention.

Information Disclosure Statement

Applicant acknowledges and appreciates the Examiner's consideration of the information disclosure statement filed July 22, 2004 and citations noted in the Form PTOL 1449, noted on Page 3 of the Office action.

Rejection of Claims 14-26 under 35 U.S.C. §112, Second Paragraph

On Page 3, Item 1 of the Claim Rejections section of the Office action, Claims 14-26 were rejected under 35 U.S.C. §112, Second Paragraph as being vague and indefinite for not reciting methodology steps for forming a ZnO single crystal.

At the outset, Applicant notes that merely because a Claim is broad does not render it vague or indefinite. *SmithKline Beecham Corp. v. Apotex Corp.*, 365 F.3d 1306, 1316 (*citing In re Gardner*, 427 F.2d 786, 788 (CCPA 1970)). Nonetheless, in order to render the claim more within the lines of what the Examiner may view as acceptable claim language, Applicant hereby amends Claim 14 to recite that the semi-insulating zinc-oxide (ZnO) single crystal is formed using a modified Bridgeman technique in which the ZnO crystal is formed from a ZnO melt contained within solid-phase ZnO. Support for this limitation is found in Figure 1 and paragraphs [0008], [0011], and [0013]-[0016], including U.S. Patent No. 5,900,060 which is incorporated by reference into the subject application. It is submitted that the rejection to Claims 14-26 under 35 U.S.C. §112, Second Paragraph is overcome by this amendment.

Rejection of Claim 14 under 35 U.S.C. §102(b)

On Pages 3-4, Items 1 and 2 of the Claim Rejections section of the Office action, Claim 14 was rejected over an abstract of a publication authored by Song et al. (hereinafter “the Song publication”), Shanghai Inst. Optics and Fine Mechanics, Shanghai, 2018000, People’s Republic of China. It appears the Song publication was published in 2004, which means it is not prior art to this application, which claims priority to U.S. Provisional Application 60/391,518 filed June 24, 2002.

In addition, the publication abstract states “The methods for growing bulk ZnO crystals are flux, hydrothermal, vapor phase and Bridgeman method, etc., and these methods should be improved for growing large and high quality ZnO crystal.” This seems to suggest the desirability of growing large and high quality ZnO crystals, but does not suggest necessarily that the publication describes any method that could accomplish this objective. Thus, the Song publication fails to disclose the claimed invention.

Furthermore, Claim 14 has been amended to recite that the technique used to form the semi-insulating zinc-oxide single crystal is a modified Bridgeman growth technique. Although

the Song publication does mention the Bridgeman growth technique, it does not mention a modified Bridgeman growth technique, let alone one in which the ZnO crystal is formed from a ZnO melt contained within solid-phase ZnO. Thus, it is submitted that Claim 14 as amended patentably distinguishes over the prior art for this reason.

New Claim 27

By the present Amendment, new Claim 27 has been added to the subject application to provide a varying scope of claim coverage for the invention. Support for new Claim 27 is found in similar parts of the subject application as noted above for Claim 14 as amended. New Claim 27 is even more specific than Claim 14 regarding the modified Bridgeman growth technique. Thus, it is submitted that it is both definite under 35 U.S.C. §112, Second Paragraph and patentably distinguishable over the Song publication which does not disclose a method for forming a semi-insulating zinc-oxide (ZnO) single crystal using a modified Bridgeman growth technique, let alone one “in which a melt of ZnO is formed with a heating element and is contained within a solid phase portion of ZnO cooled by a cooling unit and in which the ZnO is pressurized with oxygen (O) from a source, to form the ZnO single crystal.” Thus, it is submitted that new Claim 27 is patentable over the prior art.

Summary

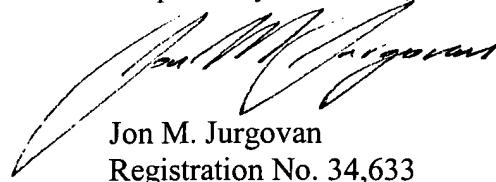
The election of Claims 14-26 without traverse is hereby affirmed. In addition, Claims 14 has been amended as necessary to overcome the rejection under 35 U.S.C. §112, Second Paragraph. In addition, it is submitted that new Claim 27 is patentable over the prior art. Accordingly, reconsideration of Claims 14-26 as amended, consideration of new Claim 27, and an early Notice of Allowance for all pending Claims, are respectfully requested.

It is not believed that extensions of time or fees for net addition of claims are required, beyond those that may otherwise be provided for in documents accompanying this paper.

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However, in the event that additional extensions of time are necessary to allow consideration of this paper, such extensions are hereby petitioned under 37 CFR § 1.136(a), and any fee required therefore (including fees for net addition of claims) is hereby authorized to be charged to Deposit Account No. 16-0605.

Respectfully submitted,

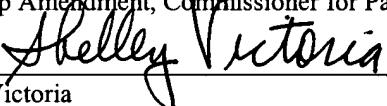


Jon M. Jurgovan
Registration No. 34,633

Customer No. 00826
ALSTON & BIRD LLP
Bank of America Plaza
101 South Tryon Street, Suite 4000
Charlotte, NC 28280-4000
Tel Atlanta Office (404) 881-7000
Fax Atlanta Office (404) 881-7777

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